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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/762,945	02/12/2001	Ronald F. Kaminsky	139/02059	1091

23373 7590 07/31/2006

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EXAMINER	
BALI, VIKKRAM	

ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 07/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/762,945

Applicant(s)

KAMINSKY ET AL.

Examiner

Vikkram Bali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18, 23 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18, 23-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/7/2006 has been entered.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-13, 17-18, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luke et al (US 5483603) in view of Masami (JP 05-299794).

With respect to claim 1, Luke discloses generating an image of the PCB, and determining the presence of oxide (see col. 4. lines 25-38 and col. 5, lines 20-22 the distinguishing between the wire "oxide" and substrate) as claimed. However, Luke fails to disclose presence of oxidized metal, and defining a pixel corresponding to oxidized metal as a metal pixel, as claimed. Masami teaches, the oxidized metal, and defining a pixel corresponding to oxidized as a metal pixel (see col. constitution, in that a camera is use to determine the presence of the oxide metal on the PCB, the pixel or the picture elements of the oxidized metal is the pixel as or corresponds to the metal pixel) as claimed.

It would have been obvious to one ordinary skilled in the art at the time of invention to simply combine the two references as they are analogous because they are solving similar problem of PCB inspection. And, the comparison of the oxide brightness to the brightness in the lookup table of Luke can simply be replaced by the brightness of the copper, the motivation is to be able to inspect the PCB under multicolor (see constitution of the Masami).

With respect to the claims 2-13, 17-18 and 23 the rejections are respectfully maintained and incorporated herein with reference as set forth in prior office action paper # 9.

With respect to claim 24, Luke further discloses inspecting the image and avoiding classifying a conductor location having an oxidized as being a fault, (see figure 1, and col. 5, lines 52-55, wherein the wire are classified as non fault) as claimed.

4. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luke et al (US 5483603) in view of Masami (JP 05-299794) as applied to claim 13 above, and further in view of Brecher et al (US 5544256).

With respect to claim 14, Luke and Masami disclose the invention substantially as disclose and described above in claim 13. However, they fail to disclose, mahalanobis distance, as claimed. Brecher teaches the defect detection in the pcb using the mahalanobis distance comparison to the threshold, (see col. 8, lines 7-15) as claimed.

It would have been obvious to one ordinary skilled in the art at the time of invention to simply combine the references as they are analogous because they are solving similar problem of pcb inspection. And, the Mahalanobis distance is well known in the art and therefore, be conventional to use that in order to compare the distances in order to find the defect or non defect on PCB.

With respect to claims 15 and 16, Mahalanobis distance being between 4 and 8

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or about 6, is just an design choice as mentioned by the Brecher in col. 8, lines 7-15, this choice could be any number depending upon the strength of the or the wavelength of the material use or to be detected on the PCB.

Response to Arguments

5. Applicant's arguments filed 6/7/2006 have been fully considered but they are not persuasive. See the rejection for the claim 1 above for the reasons.

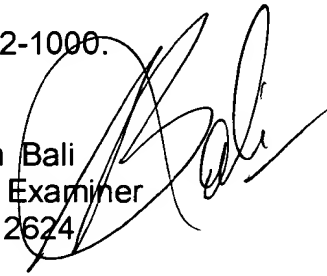
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikkram Bali whose telephone number is 571.272.7415. The examiner can normally be reached on 7:00 AM - 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571.272.7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Vikkram Bali
Primary Examiner
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vb
July 24, 2006